try already exhaustively chronicled up to date in preceding volumes, and this additional record may have involved no important novelty. All that can be required of a contributor is that he shall not overlook such novelties in the field he has undertaken to cover. With this preliminary explanation, I proceed to mention a few of the articles which have impressed me upon a first reading as especially noteworthy:

Professor Autsin's summary of the progress of 1905 in the metallurgy of copper is a very full and interesting compilation, largely from foreign sources, not easily accessible to American students. Thus, M. Guillet's discussion of the alloys of copper with aluminum, zinc and manganese, in the *Revue de Metallurgie* of February, 1905, is here summarized, with numerous graphic illustrations; and Dr. Peters' admirable series of articles in the German periodical, *Metallurgie*, is condensed into a clear statement, and thus made available (I think for the first time) to those who do not read German. Moreover, leading examples of American practice in the smelting and refining of copper at Houghton, Mich., Rapid City, S. Dakota, Anaconda, Mont., Ducktown, Tenn., Cananea, Mex., etc., and of foreign practice at Kedabeg, Russia, (where petroleum is used as fuel) are reproduced from authentic sources. The whole article is a worthy appendix to a standard manual of copper metallurgy, and all the existing handbooks are incomplete without it.

Professor Brinsmade's account of the deposits and mining of talc in northern New York, gives a picture of a characteristic industry, developed under modern industrial conditions. A few years ago no one would have expected the opening of mines to furnish material for the manufacture of paper.

President Fulton's account of the progress of cyanidation during 1905 is intelligent and helpful, mainly as a guide to the literature of the year. Without entering into details, it indicates where they may be found; and it contains sundry general conclusions and criticisms which seem to me to be discriminating and sound. The burning questions and the principal improvements in this department are justly declared to concern the treatment of slimes in general, and the cyanidation of ores containing silver.

Prof. Hofman's article on "Improvements in Sampling and Assaying" is what might be expected from this accomplished and conscientious author. That his critical survey of the year's literature in this department has revealed nothing of special significance is not his fault. For his elaborate review of "Recent Improvements in Lead Smelting," Professor Hofman had a more fruitful field, and this article, covering both ancient and modern, American and foreign practice, is intensely interesting, as well as professionably valuable.

Mr. Hutchins' article on "Gold Dredging in 1905" is full of vigor and hard common sense. The modern dredging process does not require the expenditure of a large sum for pipe lines to bring water a long distance and deliver it under high pressure, or for bed-rock tunnels, to "bottom" auriferous deposits and furnish an escape for their tailings. It carries forward the dredge, in a travelling lake of its own making, provides the necessary hydraulic jet by steam pressure, and leaves the tailings behind without fear of "debris" suits or injunctions. Naturally, these features have powerfully attracted inventors, investors and adventurers, and, in many instances, dredges improperly constructed, or deposits of impracticable character have been included in enthusiastic, but ill-fated schemes. Such a sane discussion of its limitations and conditions as Mr. Hutchins gives is a wholesome corrective of wild schemes, while it does not at all impair the reasonable conclusion that the dredging process is a great improvement, which has come to stay, and which, prudently and skilfully handled, will immensely increase the production of bold by the exploitation of deposits otherwise economically unavailable at the present time.

Mr. James' brief but suggestive account of the "Progress in Gold-Ore Treatment During 1905" will be all the more welcome to American readers in that it chronicles chiefly the practice of South Africa and the Australian colonies, of the progress of which the author, as an officer of the Institution of Mining and Metallurgy, in London, has special opportunities to keep himself posted.

Mr. Lesley's account of the cement industry, though much briefer than the importance of the subject would justify, is a stimulating and suggestive view of one of the greatest advances in modern constructive engineering.

Mr. Phillips furnishes, in his account of the quicksilver mining industry in Texas, an addition to our knowledge of the mineral resources of that vast, rich and still (to most of us) little known state.

I need not say that the contributions of Professor Richards on the year's progress in gold milling, ore dressing and coal washing are thorough and masterly. These subjects he long ago made his own, and so long as he continues actively to study, criticize and record the advances of theory and practice in these fields, no one will contest his leadership.

Professor Stoughton's review of progress in the metallurgy of iron and steel confined to a discussion of the improvements and changes of practice which seem to the author to have permanent value. Under this head, he includes, as real novelties, the Gayley dry-air blast and the application of electric smelting to the production of iron and steel. In both cases, his judgment is unquestionably correct; but in another particular, I think he has failed to realize the overwhelming significance of a feature of modern practice which he indeed mentions, but only to say that it has made no further progress in this country. I refer to the use of gas engines, run upon blast-furnace gas. In this country, only the Lackawanna Steel Company, I believe, has thus far adopted this improvement, and this company has encountered, as is usually the case with new devices, more or less difficulty in its operation. But if Professor Stoughton had been with us this summer, in England and in Germany, in which latter country engines furnishing more than 300,000 h.p. are already running upon the waste gases of blast furnaces, which we Americans simply throw away, he would not have lost the chance of declaring, as he might have done with perfect safety, that this great new economy is sure to conquer us, as it has victoriously conquered our brethren beyond the sea. In fact, the ironmasters of Germany, handicapped by scanty supplies of lean and impure ores, inferior fuel, and sundry other unfavourable conditions, have developed a degree of thorough and precise scientific management and minute and manifold economy far surpassing the present features of average American practice. We could learn much from them now, with immediate advantage. By and by, when we shall have skimmed and consumed the rich cream of our iron-ore deposits, and come face to face with more severe conditions, we shall be glad to learn many things to which we are now, in our wealthy way, relatively indifferent.

I must put an end to this desultory review, for lack, not of materials for further comment, but of available time on my part, and space on the part of the *Engineering and Mining Journal*. As I am quite aware, my notice of this volume contains little or no adverse criticism, and therefore reads like a "puff." But I cannot help that: I have gone through the book and honestly set down what I thought about it. It is a good book; and, being a good critic, I am obliged to say so, at whatever sacrifice of such reputation as I might have won by slashing and destructive comment.

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Thirty-one collieries in the Newcastle district, New South Wales, Australia, and six interstate steamship companies, have established a combine with the object of controlling the output of the northern collieries of that State, amounting approximately to about 4,000,000 tons per annum, and regulating the price.

Hugh L. Cooper, the engineer who devised the plans to utilize the water power of Niagara, proposes to construct a dam 6,000 ft. long at Keokuk in order to utilize the water power of the Mississippi River. If built this will be the greatest dam in the world.